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Ruggedized Instrumentation Package for Marine Mammal Evoked Potential Hearing Measurements (DURIP)

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LONG-TERM GOALS

To examine the hearing of as many marine mammals and species as possible in order to develop an understanding of the normal hearing capabilities of marine mammals. To advance the technology for testing hearing in the laboratory and the field.

OBJECTIVES

To build a rugged field-ready portable battery-operated system to use to measure the hearing capabilities of marine mammals in the lab, on ships, on the beach or wherever we have the opportunity.

APPROACH

Assemble equipment into a field-ready system, test the system in the laboratory, improve it with use, deploy it to stranded animal and field situations as they become available and test the hearing of marine mammals.

WORK COMPLETED

New suction cups and other electrodes built and field tested. Combined equipment taken to Portugal and tested on the Pilot whale. Combined equipment tested on the beach for the Pygmy killer whale and on the striped dolphin. Multiple equipment pieces purchased ,assembled and reconfigured. New computer programs written and tested.

RESULTS

Construction of Ruggedized equipment continues. Some portions used to measure the outgoing signals of the neophocenoides finless porpoise in China. Both programming and Ruggedized package assemblage continues. Audiograms of the long finned pilot whale, the pygmy killer whale and the striped dolphin were measured.

IMPACT/APPLICATIONS

Of the 85 species of whales and dolphins, we have basic hearing measurements now on 16 species. The new equipment was used to gather hearing data on two new species in the past year. Many of our audiograms come from a single animal. This equipment will greatly assist in gathering information on what marine mammals hear. If navy operations are stopped because of the effects of noise on whales, it is imperative that we have baseline information on marine mammal hearing.

TRANSITIONS

Our results on hearing are used by the U.S. Naval Fleets in their requests for LOAs and permits for Training. Our data are also cited by NOAA, NMFS in their Biological opinions required under the Endangered Species Act for issuance of opinions regarding Fleet Training and in Navy and NMFS NEPA requirements. This equipment allows the acquisition of new hearing data that is quickly published and available for use.

RELATED PROJECTS

Basic Hearing and Echolocation Mechanisms of Marine Mammals: Measured Auditory Evoked Potential and Behavioral Experiments: Award Number: N0001405-1-0738
<http://www.hawaii.edu/HIMB/>